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症　　例

# Primary Torsion of the Greater Omentum

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## Summary

A case with primary torsion of the greater omentum is reported. This pathological condition is an uncommon cause of acute abdominal emergency and it is very difficult even for general surgeons to differentiate this from other acute abdomen. The etiology remains unknown and the treatment of choice is resection of the affected organ.

## Introduction

Many patients visit our department with a chief complaint of acute abdominal pain. Among them, acute appendicitis is the most common entity. We recently experienced a case of primary torsion of the omentum with a complaint of right lower abdominal pain and operated on with the preoperative diagnosis of acute appendicitis.

We present the case and review of the Japanese literatures.

## Case Report

A 40-year-old businessman was admitted to our hospital with a 3-day history of increasing severe, constant pain in the right lower abdomen on 16 March, 1991. He had consulted his home doctor in the early morning of the day and had been diagnosed as "acute abdomen" He had suffered from duodenal ulcer and been treated conservatively one year before.

He was 165 cm in height and 56 kg in weight. His pulse was 96 beats/min, temperature 37.7°C, leukocyte count 12,300/mm$^3$ Urinalysis showed positive ketone reaction. There was tenderness, release tenderness and slight guarding in the right iliac fossa. Bowel sound was weak. No mass was palpable and rectal examination was negative. Plain X-ray film of the abdomen disclosed some distended intestinal loops of varying calibre and air-fluid levels in left upper and right

Key words: Primary torsion of the greater omentum, acute appendicitis, serosanguinous intraperitoneal fluid.
特発性大網捻転症，急性虫垂炎，漿液血性腹水.
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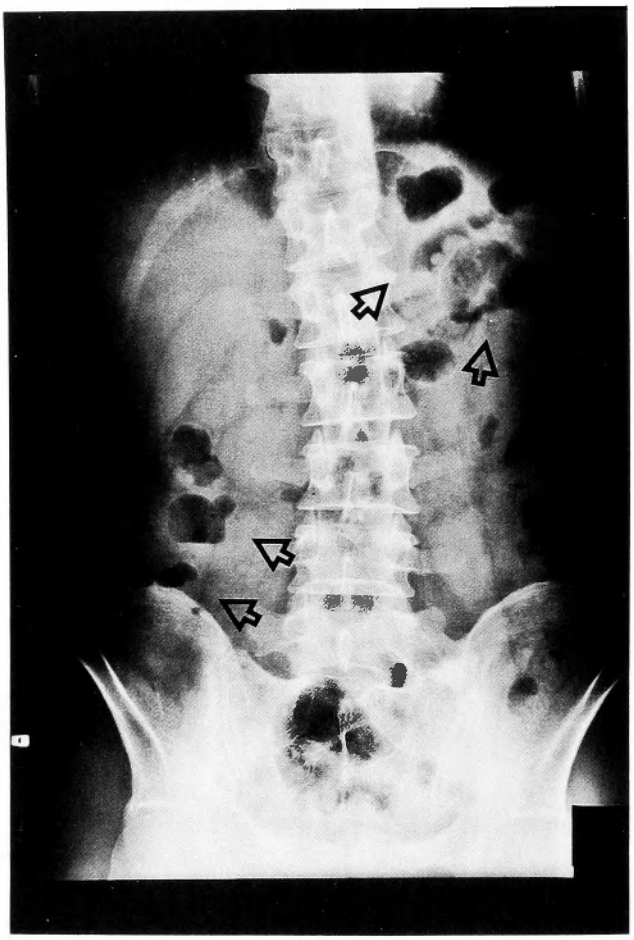

**Fig. 1** Plain X-ray film of the abdomen. Arrows showing partially distended intestinal loops.

lower abdominal areas (Fig. 1).

On a provisional diagnosis of acute appendicitis operation was performed through a Lanz incision. There was a small amount of free sorosanguinous fluid in the peritoneal cavity. The appendix and terminal ileum were almost normal. However a part of dark red, edematous omentum was observed. Further exploration revealed a mass, which proved to be an infarcted area of the omentum secondary to torsion. The omentum undergone torsion 5 times in a clockwise direction. The twisted portion was $5 \times 5 \times 5$ cm in size. The affected part was excised (Fig. 2) and incidental appendectomy was performed. Recovery was uneventful. The resected omentum showed $37 \times 24$ cm in size. Histological examination of the excised specimen revealed congestion of the venous system and focal hemorrhage (Fig. 3).

## Discussion

Primary torsion of the greater omentum is a rare pathological condition and was first described

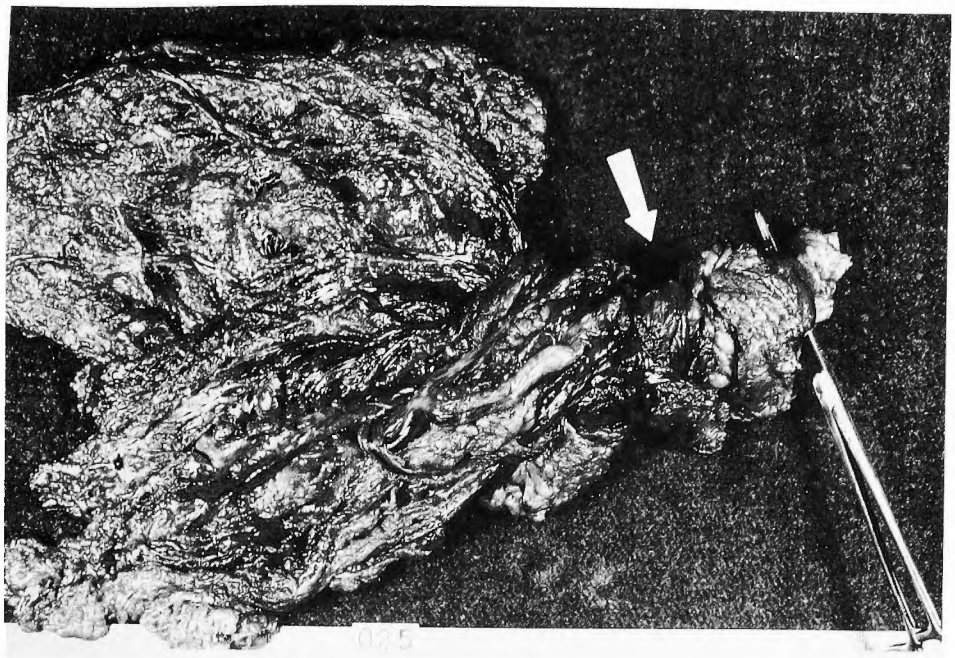

**Fig. 2** The resected specimen. An arrow demonstrating the twisted portion.

**Fig. 3** Section of the resected omentum shows congestion and focal hemorrhage. (Hematoxylin and Eosin stain; original magnification × 10).

by EITEL[7] in 1899. Up to 1990, only 27 cases have been reported in Japan[2]. The addition of one patient herein presented increases the total to 28 documented instances of the literature. As shown

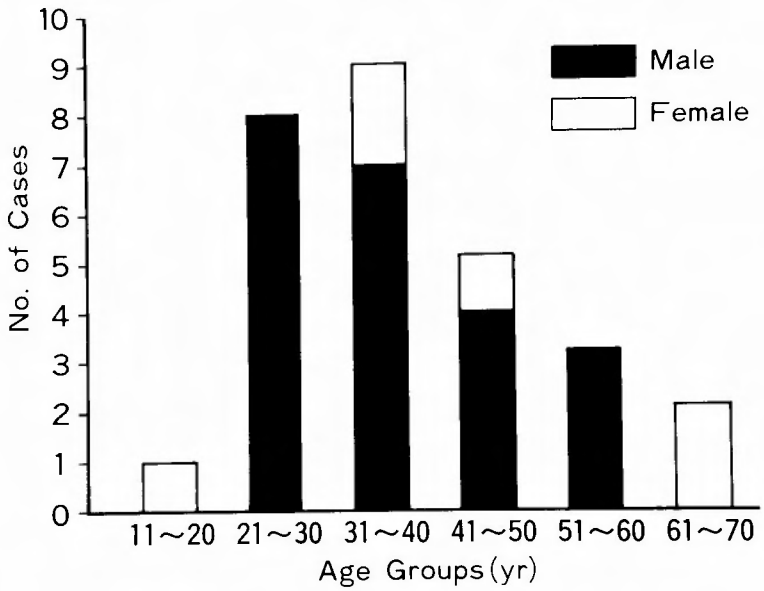


**Fig. 4** Distribution of the patients by age and sex.

in Fig. 4, this disease occurred in 22 men and 6 women. The male-female ratio was 3.7 : 1. Seventy-nine per cent of the patients were between 21 to 50 years of age with the largest age group between 31 to 70 years. This tendency is similar to that in other countries[3,4]. The mean patient age was 38.5.

The majority of the patients complain of right abdominal pain, show leukocytosis and fever[10]. In this series, twenty-one out of 27 patients (77.8%) complained of right abdominal pain, and ninety-one (21/23) and sixty-three (12/19) per cent of the patients showed leukocytosis and fever, respectively. A preoperative impression of acute appendicitis was recorded in 23 patients (92.0%) and no case was diagnosed as omental torsion. MAINZER et al.[9] reported that in his series of 165 cases, a preoperative impression of acute appendicitis was recorded in 119 (72.1%) and torsion of the omentum was suspected in only one instance (0.61%). Free serosanguinous intraperitoneal fluid was recognized in 13 (65.0%). The nature of the peritoneal fluid depends on the length of the time the omentum has been twisted[8] and is peculiar to this disease[5]. This is supposed to be caused by disturbance of venous return of distal free end of the omentum. The degree of the rotation ranged from half of a rotation to 30 rotations. The direction was clockwise in 19 cases and counterclockwise in 5.

There are many theories concerning to the etiology of the development of this disease. ADAMS[1] classified possible etiologic causes into predisposing and precipitating factors. Predisposing factors include anatomical variations, obesity and arrangement of omental blood vessels. Precipitating factors are those which result in displacement of the omentum. These are trauma, hyperperistalsis, or acute changes in body position. There was no apparent predisposing factors in this case, however, the development in this patient seemed to have a close relationship with the third precipitating factors, acute change in his body position; the patient sometimes twisted his trunk quickly because he had his chair between his two desks in the office.

Two varieties of omental torsion are recognized; (1) the unipolar, in which the structure is fixed at one extremity while its distal end swings free in response to any force acting upon it, and (2) the bipolar, in which the structure is fixed at two points with the interventing portion left free to twist axially[6]. On the basis of the above conception, DONHAUSER et al.[6] classified the omental torsion into primary and secondary types through many classifications have been postulated. Primary type is always unipolar, and is further divided into complete and incomplete (recurrent) subtypes. Secondary type is also divided into unipolar (tumors in omentum, internal hernias, external hernias, associated intraabdominal pathologic processes) and bipolar (external hernias, adhesions, tumors causing omental fixation) types. According to this classification, our case comes within the category of primary and complete.

Once the condition is clinically manifest, vascular thrombosis has occurred which is irreversible even if the omentum is derotated. Thus, the resection of the omentum is the treatment of choice.

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## 和文抄録

# 特発性大網捻転症の一例

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40歳，男性に発生した特発性大網捻転症の一例を経験した．右下腹部痛と発熱を主訴に来院し，白血球増多も認めたため，急性虫垂炎の診断のもとに開腹，本症と判明した．

我が国では本例を含め文献的には28例の報告がみられるが，23例　82％は術前診断が急性虫垂炎であり，海外の文献でも165例中119例72％が急性虫垂炎として開腹術を受けている．捻転による大網静脈血の還流障害に起因する腹腔内の漿液血性浸出液の存在は，本症に特徴的な所見である．発生原因に定説はないが，青・壮年層の男性に多発し，本例では職業上軀幹部を捻転することが多く，これが発生要因として作用した可能性がある．治療法は捻転部を含めた大網切除であり，これにより全例が治癒している．